

# Food Items Brought Home by Domestic Cats *Felis catus* (L) Living in Booderee National Park, Jervis Bay

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Cat owners kept records of the food items brought home by domestic cats living in two adjacent villages surrounded by Booderee National Park, NSW. During a 12 month period food items brought home by seven cats comprise eleven native and three introduced species. One endangered bird was recorded although mammals were the largest prey group.

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## INTRODUCTION

Predation by feral and domestic cats *Felis catus* (L) has been identified as a contributing factor in the decline of some wildlife populations (Eberhard 1988; Potter 1991; Dickman 1996). However, quantitative evidence of ecological impacts caused by cats is mainly concentrated on island ecosystems (Taylor 1979a; Apps 1983; Fitzgerald and Veitch 1985). In the terrestrial environment cat and fox predation can combine with other negative ecological impacts in their effect on fauna, therefore masking the impact of each predator. Isolating and quantifying these impacts require long term experimental investigation, and research of this nature has not yet been undertaken.

The impact of cat predation on wildlife has been raised as a social and ecological issue in the 1990's and an Australian synopsis has been provided by Dickman (1996). Claims of domestic cats causing the decline and extirpation of birds, reptiles and small mammals in urban and semi-urban environments has initiated a number of investigations that have attempted to fill in some of the gaps in our knowledge of the predatory behaviour of domestic cats. In Adelaide, Paton (1990) surveyed 421 cat owners (700 cats) and identified prey caught by cats to determine the number captured and the species diversity. The survey revealed that 62% of cats brought home birds, 59% mammals, 34% reptiles and a small number of frogs and insects. Trueman (1991) estimated in his Tasmanian cat owners survey, that 65,000 native animals and 76,000 introduced animals were killed by cats each year. In a study similar to Paton (1990), Barratt (1997) surveyed the owners of 214 cats in suburban Canberra to determine the prey returned home by domestic cats. It was revealed that approximately 75% of cats hunted, with the largest prey group recovered being introduced rodents (64%), followed by native birds (14%), introduced birds (10%) and a small proportion of reptiles and frogs. These studies have focused on cats living in urban/disturbed areas and in the case of Barratt (1997) the proportion of introduced prey (~75%) to native prey (~25%) is probably representative of the relative abundance of fauna that would be expected in most disturbed urban environments.

This paper reports on the prey brought home by a small number of domestic cats living within a National Park in NSW.

## MATERIALS AND METHODS

Jervis Bay Territory (approx. 150°43'E, 35°09'S) is located approximately 200 km south of Sydney on the coast of New South Wales and is an area of 7700 hectares. The landscape is predominantly Permian sandstone with wind blown sand dunes. There are six main vegetation communities (Ingwersen 1976) with heath covering the largest area in the Territory (Williams 1995). Twenty one native non-volant mammals have been recorded in the Territory. The most abundant small mammal species are the Brown Antechinus *Antechinus stuartii* and the Bush Rat or Mootit *Rattus fuscipes*. Six species of vertebrate pests co-habit the area (Meek and Nazer 1995), including the European red fox *Vulpes vulpes*, the cat *Felis catus* and the dog *Canis lupus familiaris*.

In this study, cat owners in two adjacent villages (HMAS Creswell and Jervis Bay Village) within Booderee National Park were asked to collect animals brought home by their domestic cats during 1994. The purpose of the investigation was to supplement a larger study aimed at radio tracking cats to determine whether cats were hunting in the surrounding National Park (Meek unpub. data). The owners (n=6) of seven cats agreed to collect specimens. They were asked to record the prey items brought home, and behavioural information including; when the cat brought the specimen home, whether the prey was alive or dead and if it had been partly eaten by the cat. The owners contacted me to retrieve the specimens which provided an opportunity for accurate taxonomic identification. The study did not aim to quantify the impact of cat predation, only to determine the prey items brought home. The assumption was made that prey brought home was caught by each cat and did not reflect the actual prey killed because this was impossible to determine without stomach analysis and behavioural observations.

The survey was conducted over a 12 month period although several cat owners, including the most efficient hunting cat, left the area during the study. Efforts were made to encourage new participants in the study but all were reluctant to assist.

## RESULTS AND DISCUSSION

Thirty five specimens were brought home by cats in the study comprising eleven native and three introduced species (Table 1). Native mammals were the largest prey group (49%), followed by introduced mammals (26%), native birds (19%) and reptiles (6%). One bird species (Ground Parrot, *Pezoporus wallicus*) caught by cats is listed as a vulnerable species on Schedule 2 of the Threatened Species Conservation Act (1995).

Most of the prey were caught at night, particularly mammals (Fig. 1), and 34% of prey were found partially eaten by the cats. It was impossible to determine the number of prey killed, cached or killed and eaten by the cats.

The results of this survey indicate that cats residing in natural bushland do hunt native wildlife, in particular mammals. However, these results only represent a small number of cats in a population and the method used only allows for generalisations to be made about cat predation. The data can not be used to comment on population impacts. These results concur with Leyhausen (1979), Churcher and Lawton (1987), Fitzgerald (1988), Barratt (1997) and Meek and Triggs (in litt.) that small mammals are a favoured food item of the cat. As expected, the proportion of native species to introduced species in this study is contrary to the findings of Barratt (1997). In his study, cats in the urban areas of Canberra returned with more introduced than native animals which reflects the difference in species composition between urban and natural habitat.

TABLE 1  
Prey items brought home by domestic cats in Jervis Bay Territory

Status	Prey Class	Common Name	Species name	Frequency	
				n	%
<b>Native</b>					
Mammal		Brown Antechinus	<i>Antechinus stuartii</i>	3	8.6
		Dusky Antechinus	<i>Antechinus swainsonii</i>	2	5.7
		Sugar Glider	<i>Petaurus breviceps</i>	5	14.3
		Ring Tail Possum *	<i>Pseudochirus perigrinus</i>	4	11.4
		Bush Rat	<i>Rattus fuscipes</i>	3	8.6
Bird		Ground Parrot	<i>Pezoporus wallicus</i>	2	5.7
		Red Wattle Bird	<i>Anthochaera carunculata</i>	1	2.6
		Southern Emu Wren	<i>Stipiturus malachurus</i>	1	2.6
		Grey Shrike Thrush	<i>Colluricincla harmonica</i>	1	2.6
		Crimson Rosella	<i>Platycercus elegans</i>	2	5.7
Reptile		Skink	unknown	2	5.7
<b>Total</b>				<b>26</b>	<b>74.3</b>
<b>Introduced</b>					
Mammal		House Mouse	<i>Mus domesticus</i>	5	14.3
		Ship Rat	<i>Rattus rattus</i>	2	5.7
		Rabbit	<i>Oryctolagus cuniculus</i>	2	5.7
<b>Total</b>				<b>9</b>	<b>25.7</b>

\* killed by unidentified cat.

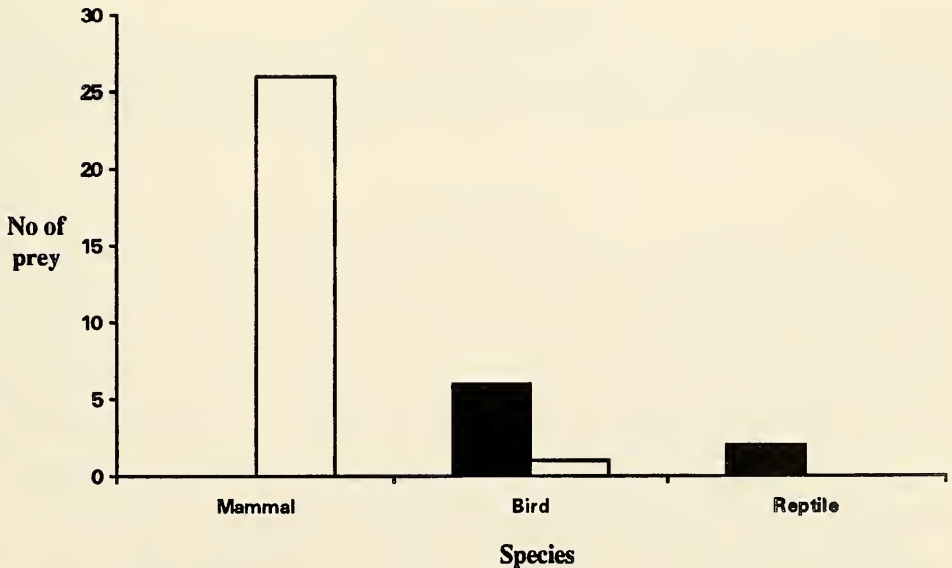


Figure 1. Time of day when prey were brought home (n=35 prey) by domestic cats in Booderee National Park 1994. Open bars = number of prey brought home in the day; solid bars = number of prey brought home at night.



Information provided in this study suggests that cats in Jervis Bay are taking fewer prey items home (5 prey/cat/year) than cats in Adelaide (54 prey/cat/year) (Paton 1990). This wide differentiation in figures is most likely a result of three main factors; the small number of cats in this study, the different survey techniques used between the studies and the removal of cats from this study when their owners left the villages. Efforts were made to bring new cats into the study, however many owners were concerned that the evidence would be used to prevent the ownership of cats within the National Park.

Cats are often described as opportunistic hunters (Turner and Meister 1988; Dickman 1996; Barratt 1997), although observations in this study suggest that individual cats can also specialise in hunting preferred species. Two of the cats in this study showed an apparent tendency for hunting particular species; one cat was an extremely successful mouser (*Mus domesticus* and *Rattus rattus*) while another was an efficient hunter of sugar gliders *Petaurus breviceps*. This form of individuality was also observed in cats from Canberra (Barrett, D. pers comm. 1995) and the behaviour has been discussed by Turner and Meister (1988).

Barratt's (1997) view is that there is a potential threat to patchily distributed wildlife by cats in new residential developments and he recommends night curfews to reduce the impacts on mammal species. Similar threats are posed by cats residing in close proximity to natural bushland, particularly to species with low abundance or that are at risk of extirpation. This view is not supported by Jarman and van der Lee (1992) who believe that domestic cats are a potential threat to wildlife, but consider they pose little threat to endangered species. The combined results of my study, that of Barratt (1997) and unpublished tracking data by this author confirm that domestic cats will hunt in natural bushland and will hunt and kill wildlife (including endangered species). However, the implications of this predation on population abundance of species is unclear. As a precautionary measure it is recommended that free-roaming cats are restricted from wandering in areas where there are threatened native wildlife.

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